Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

part of the aperture, where the steam enters a smoke-flue, a stone may be made to project a little way into the chimney, in order to break the current of the ascending smoke, and thereby facilitate the entrance of the steam.

I would remark further, that in some cases a curved or angular form may possibly be found the most eligible for the steam chimney, in order to prevent a gust of wind, or any other casualty, from forcing soot down into the liquid in the pan. I have not yet witnessed any immediate necessity for it myself, and therefore merely suggest it as possible, but yet very easily remedied.

On the Utility of Oxygen Air in promoting Vegetation; by Daniel Hill, Esq. F.H.S. (From the Transactions of the Horticultural Society of London.

The two sketches of a Pelargonium Zonale, which I have now the honour of exhibiting to the Horticultural Society, are fac-similes of the plant itself, and will give some idea of the utility of oxygen air, when imparted to the soil around the roots of plants This plant, in June 1796, was eighteen inches high, with few flowers upon it. As the window of my house, in Great Russel-street, where the plant was kept, faces several large breweries, this, like many others, during eight successive years, soon drooped, and shewed the badness of the air for vegetation, so that by the middle of July, having been drawn weak, and most of its leaves decayed, it was condemned for removal.

Being strongly persuaded that oxygen air gave vigour to plants, I determined to try the effect of applying it to the soil of this plant. In the short space of a week, I was gratified with seeing an evident change for the better, all the branches beginning to grow; and, from a sickly yellow, its leaves soon resumed their natural green colour. Three strong shoots from the bottom in six weeks grew up to the top of the old plant, and by the middle of September it was in the greatest possible health, loaded with flowers, and the largest leaves I had ever seen. The height of the plant, under this treatment, was

in September, 1796, two feet nine inches,
in September, 1797, five feet ten inches,

sending out proportionably vigorous lateral branches.

Thus, it appears, that by the use of oxygen air this plant, in an unfavourable situation, grew stronger and more healthy than it probably would have done in the most favourable situation without oxygen air; for the earth in which it grew only weighed between five and six pounds; the pot stood in an east window of a room, in which a fire was only kept about six hours out of the twenty-four each day, so that the frost often penetrated to it; and that of Christmas, 1796, was so keen as to sink a thermometer, hung behind the plant, several degrees below the freezing point. By a temporary removal, however, into a warmer room, though the plant was greatly injured, it was so far restored to health as to be full of leaves and flowers by March, 1797. This healthy state was again checked by a severe frost penetrating into the room, my servant having incautiously left the window open: its flowers were quite blasted, and most of its leaves. From this accident, however, it soon recovered, and is at this moment more than twelve feet high, in the fullest health and beauty.

I have been making experiments for several winters, on the roots of hyacinths, placed in the glasses of New River water, by immersing an ounce phial, filled with oxygen air, in the glass, with its mouth downwards. These hyacinths were double varieties, which an eminent nurseryman in Fleet-street informed me seldom succeeded in water alone: yet not a single root has ever failed; on the contrary, both the flowers and leaves were bolder and larger than those of the same plants cultivated in the earth with the greatest care.* During the progress of their vegetation the oxygen air in the phial is gradually absorbed, and consumed, no doubt, by the plant.

I have been enabled to produce melons of a higher flavour than usual in our climate, and under very unfavourable management in other respects, by applying oxygen air to their roots, and have no doubt but it would improve all fruits whatever, as well as enable plants to resist the effects of cold.† In no esculent vegetable, however, are the good effects of this vital air more evident than in the Zea Mays, or Indian Corn: as the specimens now exhibited prove, which, though grown in Great Russel-street, equal in size most of those imported from North America.

Description of Count Rumford's newly invented Lamps; taken from his Memoirs, read at the Imperial Institute of France, June 24, 1811.

The sixteenth Essay of Count Rumford, lately published here, is the translation of a paper on the management of light in illumination, presented to the Imperial Institute of France; and contains accounts of three species of lamps made on the same principle; the first, a pendulous lamp; the second, a table lamp; and the third, a portable lamp; but it relates principally to the latter.

The pendulous lamp is composed of a cluster of three, four, five, or six cylindrical tubes, containing the wicks, arranged so as to have a double current of air, in the same manner as the Argand lamps, and surrounded by a balloon of twelve sides, 18 inches in diameter.

This balloon is composed of white gauze, or crape, stretched over brass wires, sustained by a horizontal hoop of gilt brass, about an inch broad; which is suspended by six chains, attached to six rods of gilt brass screwed horizontally to this hoop.

The balloon, which encloses the lamp so as to conceal it entirely, may be ornamented in various ways. M. Parquet, a lamp manufacturer in Paris, has proposed to cover the wires, which support the balloon, with small Bohemian crystals, and to form the chains of links composed of large oblong crystals, cut in facets, and enchased in gilt brass; the balloon may also be placed in the centre of a large lustre, or be covered entirely with crystals.

When this lamp is intended to illuminate a dining room, the lower half of the balloon should be taken off, and its place be supplied by a screen of gauze or white crape, in

---

* These experiments strongly confirm the opinion of our President, stated in the Philosophical Transactions of 1808, that the sap of vegetables becomes saccharine, and prepared to generate their new leaves, by the absorption of oxygen air; who has also suggested that one of the offices of the alburnous tubes is to admit air.—*Sec.*

† The late Mr. Francis Mason informed me, that he was convinced all the plants which grow wild in the high mountains of Llangekloof, Roggeveldt, and other districts at the Cape of Good Hope, there experience a continued degree of frost every winter, which would kill them in our green-houses; possibly the author's theory may account for this, if it appears from accurate investigation, that the air of those heights is considerably more oxygenated than in lower countries.—*Sec.*